

# NAVAL POSTGRADUATE SCHOOL MONTEREY, CALIFORNIA



## THESIS

**ANALYSIS OF POST-RETIREMENT EARNINGS  
AND EMPLOYMENT EXPERIENCES OF  
MILITARY RETIREES**

by

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March 1996

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AND EMPLOYMENT EXPERIENCES OF MILITARY RETIREES**

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Submitted in partial fulfillment  
of the requirements for the degree of

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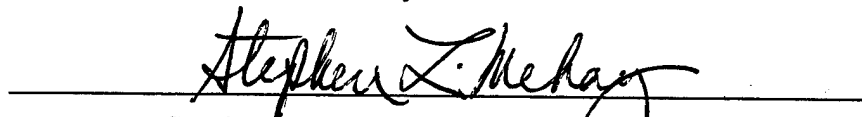
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## ABSTRACT

This thesis investigates the wage and salary differentials experienced by military retirees in their post-service second career in the civilian labor market. The 1990 Census of Population and Housing, Public Use Microdata Samples was used as the source of data. Log earnings regression models were specified and estimated to determine earnings differences between military retirees and two comparison groups. The effects of the number of weeks and hours worked, education, location and receiving retirement income were controlled in the earnings regressions. The results indicate the proportion of military retirees not in the labor force is substantially higher than the proportion of non-veteran civilians or non-retired veterans not in the labor force. The data also reveals that retirees tend to work less weeks per year and hours per week. Finally, retirees earn on average \$4,347 less annually than both comparison groups. Thus, military retirees not only tend to work less but when they do work they tend to take jobs that pay less. The present value of the earnings difference between a retiree and a non-retired veteran is approximately \$48,534 (11.38 percent).



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## **I. INTRODUCTION**

### **A. BACKGROUND**

With the end of the cold war and the subsequent draw down of the Department of Defense, the size of the military budget has come under increased scrutiny. Politicians and their supporters alike have forced the Department of Defense to justify its spending habits. One area that has been heavily criticized is the military retirement system. This system allows an individual who remains on active duty status for at least twenty years, to collect retirement benefits upon leaving the service. As most people are well aware, a military retiree's career is broken into two parts: military service and a post-military civilian career. After 20-30 years of service, a retiree leaves the military and may enter the civilian labor force for a second career. The average age of the retiree at this point is usually 42 years of age for enlisted men and 46 years of age for officers (Peterson, 1993). Military retirees are in a position to collect their military retirement benefits, as well as any income from a second civilian career for roughly 35 years plus any retirement pay accruing from the second career. The ability of retirees to potentially collect two incomes and possibly even a second retirement annuity and the structure of the military pension system is presently being examined.

There are two major arguments in favor of revamping the military retirement system. First, critics question the costs of the military compensation system. This is a result of the rapidly rising costs of the present retirement system due to an inflation-adjusted retirement benefits and the increased number of actual retirees. Tables 1 and 2 show the retirement income for military retirees by grade and various years of service for 1989 and 1996, respectively. Certain enlisted pay grades (E-5 thru E-8) and officer pay grades (O-4 thru O-6) were selected to provide

an example of the retirement income that enlisted personnel and officers can receive after serving twenty or more years of military service. Retirement pay calculations are based on the base pay received by the individual at the time of retirement and the number of years of military service.

**Table 1. 1989 Monthly Retirement Pay Scale (\$)**

YEARS OF SERVICE											
GRADE	20	21	22	23	24	25	26	27	28	29	30
O-6	2,125	2,231	2,473	2,585	2,698	2,810	3,170	3,292	3,413	3,535	3,657
O-5	1,922	2,018	2,188	2,387	2,487	2,586	2,685	2,685	2,785	2,884	2,984
O-4	1,663	1,746	1,830	1,913	1,996	2,079	2,162	2,246	2,329	2,412	2,495
E-8	1,024	1,075	1,192	1,247	1,301	1,355	1,566	1,626	1,687	1,747	1,807
E-7	903	948	1,060	1,109	1,157	1,205	1,409	1,463	1,518	1,572	1,626
E-6	791	831	870	910	949	989	1,029	1,068	1,108	1,147	1,187

Source: Department of Defense actuary.

As Table 1 indicates, the non-labor retirement income received by a military retiree can be quite substantial. In fact, depending on what rank and the number of years of service the retiree has, his retirement income could be comparable to the wage and salary income received by a non-veteran civilian or non-retired veteran counterpart. For example an O-5 with 22 years of service can receive \$24,216 in yearly retirement income in addition to any second career wage and salary income.

When comparing the dollar amounts in Table 1 to Table 2, the inflationary adjustments to the retirement benefits over a 7 year period is readily apparent. For example, based on Table 2, an O-5 with 22 years of military service, retiring in 1996 would receive an annual retirement income of \$32,856, which equates to a 25 percent increase over the 1989 retirement pay for a similar O-5. This example

illustrates the high cost of providing a military retiree with a monthly retirement check as well as the associated costs of ensuring the system keeps pace with the cost of living.

**Table 2. 1996 Monthly Retirement Pay Scale (\$)**

GRADE	YEARS OF SERVICE										
	20	21	22	23	24	25	26	27	28	29	30
O-6	2,659	2,792	3,094	3,235	3,490	3,635	3,966	4,119	4,271	4,424	4,576
O-5	2,405	2,525	2,738	2,863	2,987	3,112	3,236	3,361	3,485	3,610	3,734
O-4	2,081	2,185	2,289	2,393	2,497	2,601	2,706	2,810	2,914	3,018	3,122
E-8	1,281	1,345	1,492	1,560	1,700	1,771	1,960	2,035	2,111	2,186	2,261
E-7	1,130	1,187	1,327	1,387	1,519	1,583	1,763	1,831	1,899	1,967	2,035
E-6	990	1,039	1,089	1,138	1,188	1,237	1,287	1,336	1,386	1,435	1,485

Source: Department of Defense actuary.

Second, critics argue the current system may not provide the optimal incentive for recruiting and maintaining a high quality force. This argument is based on the fact that enlisted personnel and officers can receive retirement benefits at an early age (mid-40's) and then commence a second career. Therefore, if second career civilian earnings are sufficiently high, the military pension could be relatively unimportant as an incentive for retention and could possibly be reduced with little effect on retirees' well being. If these arguments are true, then a reduction in military retirement benefits may have little or no impact on the quality, retention and length of service of recruits. (Borjas and Welch, 1985)

## **B. OBJECTIVES**

This thesis examines the potential earnings differences that may exist between military retirees and two comparison groups: non-veteran civilians and

civilian veterans with less than 20 years of military service. The primary research question is to investigate the post-retirement earnings patterns for military retirees. Specifically, this thesis will compare second career earnings of military retirees to the comparison groups of non-veteran civilians and veterans with less than twenty years of service. If earnings differ, the thesis will investigate the factors that might contribute to this earnings differential. Secondary research areas are to investigate the amount of hours worked by military retirees, i.e., full-time versus part-time, and determine the educational levels and occupational choices of military retirees in comparison to their civilian counterparts.

#### **C. DATA SOURCE DESCRIPTION**

This thesis uses information on retirees, veterans and civilians from the 1990 Census of Population and Housing, Public Use Microdata Samples (PUMS). This census was conducted by the U.S. Department of Commerce, Economics and Statistics Administration. The data set contains records for a sample of housing units with information on the characteristics of each unit and the people in it.

#### **D. ORGANIZATION OF THE STUDY**

This thesis is divided into six chapters. Chapter I is the introduction. Chapter II is composed of a literature review of related studies in this topic area. Chapter III specifies the approach and methodology used for this thesis, and describes the data source and variable definitions. Detailed explanations of the definition of the sample groups and model specifications are also given. Chapter IV presents the results of the analysis and discusses the statistical findings of the full sample. Chapter V discusses the results for the full-time year-round sample. Chapter VI presents the conclusions and recommendations drawn from the statistical analysis.

## II. LITERATURE REVIEW

Numerous studies have attempted to determine the second career earnings experiences of individuals who enter the labor market for the first time or who reenter the labor market after a long absence. Studies conducted on immigrants reveal that a person entering the labor market after a long absence often have significantly lower earnings at the time of entry when compared to an individual who has been working in the civilian labor market continuously. (Borjas and Welch, 1985, and Chiswick, 1985). These studies also find that the wage differentials tend to narrow over time as the entering worker assimilates into the civilian labor force. These empirical tendencies are illustrated in the age-earnings profile in Figure 1.

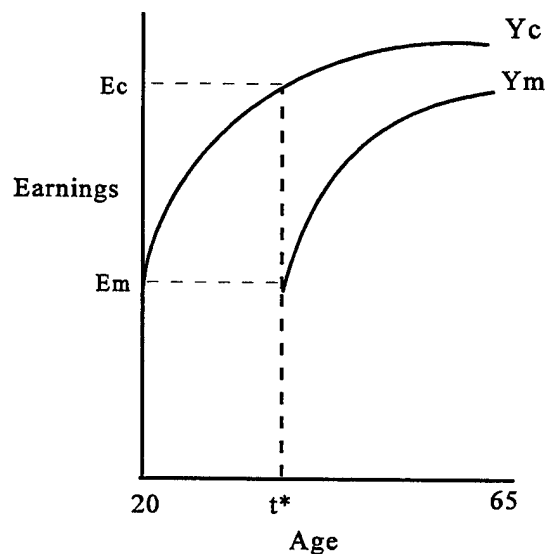


Figure 1. Typical Age-Earnings Profile

The illustrative age earnings profiles, show that the second career earnings curve,  $Y_m$ , is always below and converges with (but does not cross), the earnings curve of individuals who have been in the labor force continuously,  $Y_c$ . The earnings difference between the two curves  $Y_m$  and  $Y_c$  can be attributed to differences in the age, skill and experience levels for the two groups. As the  $Y_m$  group of workers acquire new skills over time, the difference between earnings decreases as the  $Y_m$  curve converges with the  $Y_c$  curve.

The graph also illustrates that earnings of immigrants at entry ( $E_m$ ) into the work force at age  $t^*$ , are significantly below that of an individual already in the labor force ( $E_c$ ) (Borjas and Welch, 1985). The earnings and skill differentials experienced by these individuals who enter the civilian labor force after a long absence (or for the first time) may be similar to the earnings gap that military retirees would be likely to experience upon entering the civilian labor market after spending twenty or more years in the military service.

There are several reasons for expecting this gap for military retirees. When comparing the skills and experience of an individual already in the civilian labor market with the skills acquired by a military retiree, the skills of the retiree are mostly military-specific. Similarly, a person in the civilian labor market has accumulated by age  $t^*$  a significant amount of general civilian labor experience, and specific experience at a single firm. Based on this, and the possibility that some specialized military skills may not be transferable to the civilian sector, the typical retiree should be significantly disadvantaged upon entering the civilian labor market at age  $t^*$ . This gap in skill levels partially explains the likely gap in earnings. Finally, as the civilian accumulates more civilian labor market experience over time, the initial earnings gap at age  $t^*$  will increase with the number of years a

military veteran or retiree is absent from the civilian labor market as  $t^*$  increases (Borjas and Welch, 1986).

Human capital theory is often used to investigate the effects of military service on the earning capabilities of veterans and retirees entering the civilian labor market. Human capital represents the present value of the future earnings derived from an individual's accumulated knowledge, skills and abilities. The theory implies that individuals will undertake jobs with earnings below their potential, devoting time and effort to learning and mastering new skills, in hopes of higher future returns. Therefore, as the individual ages, the opportunity cost of investing in human capital rises, leading to a life cycle decline in the incentive for undertaking such investments. However, the convergence of the  $Y_m$ - $Y_c$  earnings profile is indicative of the possible intensive human capital investment the military member may undertake in his second career. Although human capital theory states that individuals will invest less in human capital as they age, Borjas and Welch (1985) demonstrate that the aging process does not substantially reduce the incentives for human capital investment over the relevant range of  $t^*$ . In fact, military retirees facing a second career can expect a return as high on their investments as those made by significantly younger individuals. The reason for this is that retirees in their mid-forties face a lower opportunity cost of investing for two reasons: (1) their relative lack of civilian labor market skills, and (2) their non-labor retirement income. Low investment (opportunity) costs and high investment benefits lead to strong incentives for investment in human capital for military retirees prior to or just after retirement. This suggests that post-investment earnings profiles of military retirees could indeed converge and possibly overtake those of civilians as they assimilate into the civilian labor market.

Finally, when comparing the earnings of retirees against a group of civilian veterans, one would expect that veterans already in the civilian labor market would earn more than retirees just entering the civilian labor market. Since veterans chose to leave the military prior to a twenty year retirement, they entered the civilian labor market much earlier and at a younger age than a retiree. This earlier entry by non-retiree veterans into the labor market allows them to retool, gain new skills and experiences in the civilian labor market and tenure at a given firm. Consequently, when a retiree enters the civilian labor market he is much older and his second career is significantly shorter than that of a veteran. His ability to acquire new skills and establish seniority within a civilian labor force is constrained by his age. Therefore, a veteran in the civilian labor market would tend to earn more than a retiree who just entered the civilian labor force. It is also possible the veteran could earn more than a retiree at any point in time in the retiree's second career.

Several studies of military retirees' post-service career earnings have been conducted to determine the possible earnings differentials that a retiree may face upon entering the civilian labor market in comparison to non-veteran civilians and non-retired veterans. Various factors such as age, race, education, military occupation, whether the individual was an officer or enlisted person, amount of hours worked and possible retooling by a retiree were addressed. The results of the various studies comparing military retirees and non-retired veterans are discussed below.

#### **A. RETIREES COMPARED TO NON-RETIRED VETERANS**

Several studies have been conducted to determine how the earnings of military retirees compare with that of non-retired veterans. These studies concentrate on the second career earnings of retirees in comparison to non-retired

veterans and investigate; (1) the amount of hours and weeks worked by retirees, (2) whether retirees work full-time or part-time, (3) the transitional effect and, (4) whether a retiree undergoes significant "retooling."

1. Borjas and Welch (1985) found that the earnings differential between civilians and military retirees (officers and enlisted personnel) was greatest right after retirement and that there is a rapid convergence between the two groups' earnings over time. However, the convergence is not sufficient to result in full-time year-round (FTYR) military retirees overtaking the earnings of comparable civilians. Therefore the second career earnings of retirees is lower than that of a comparable veterans in the civilian labor market. The difference equated to a 14 to 24 percent total earnings difference for retirees when compared to civilian workers for the same period of the retirees' second career life cycle.

2. Borjas and Welch (1986) found that a second career is the norm for Air Force retirees and that transition into the civilian labor force occurs rapidly. Nearly half of the retirees began work within one month after retirement and 85 percent began working within a year after retirement. Earnings differences between the two groups were also largest upon retirement, and second career earnings of retirees were lower than that of comparable civilians. The difference equated to a 10 to 30 percent total earnings difference for retirees when compared to civilian workers over the same period of the life cycle. In comparing the age-earnings profiles of both groups they found that both profiles converge rapidly but not sufficiently enough for retirees to overtake veterans. They also found a significant amount of "retooling" is conducted after retirement for retirees who faced a limited civilian career path as a result of their military occupation.

3. Danzon (1980) found that a retiree's weekly wages are 10 to 20 percent lower than non-career veterans and that wages vary by race and level of

schooling. These results could occur because of a possible decision by veterans to work fewer hours per week or weeks per year based on nominal earnings and not necessarily real income or welfare effects. Half of the retiree earnings differential can be attributed to differences in job-related characteristics. Finally, unobserved characteristics of individuals that opt for a military career versus civilians may tend to overstate the second career earnings loss of a military retiree.

4. Cooper (1981) found that an individual who left the military shortly after he was eligible for retirement, earns about as much as, if not more than, a non-retired veteran, after the retiree has been in the civilian labor force for 5 to 10 years. Cooper's study also found that rank, time in service and type of military occupation affect a retirees' post-service career earnings. The study also indicated that a transition period from military to civilian life seems to take place as the retiree adjusts and assimilates into the civilian labor market. Cooper states that a retirees' second career "losses," the difference between what a retiree could have earned had they not served for twenty years and what they actually earn in their second careers, can be attributed to a tendency for retirees to work less than other non-retired veterans. Finally, Cooper suggest the findings in this study differ significantly from other studies because of sampling techniques. Previous studies' data bases may have oversampled recent military retirees, in comparison to retirees who have been in the civilian labor force for any significant amount of time. Since individuals recently retiring from the military tend to earn less than retirees who have been in the civilian labor market for a few years, it would make sense that previous studies would indicate significant earnings losses for retirees. This is a direct result of basing their findings on a sample of retirees who may not be representative of the population of retirees as a whole.

## **B. NON-RETIRED VETERANS COMPARED TO CIVILIANS**

Several studies have investigated the transferability of military training and occupational skills to the civilian labor market by comparing non-retired veterans versus non-veteran civilians. The major finding of these studies is that only certain military skills and training are easily transferable to the civilian labor market. Consequently, veterans with valuable skills that are transferable, experience lower earnings differentials than those with non-transferable skills. These studies also found that some veterans experience losses in earnings because of the lost opportunities to acquire and accumulate civilian labor market experiences while serving in the military. A sample of these studies are discussed below.

1. Detray (1982) investigated the effects of civilian and military experiences on non-retired veterans' earnings based on military occupation. The study found that for nine military occupations, military experiences and skills did in fact increase potential civilian earnings. Four of the nine occupational categories (medical, mechanical equipment repair, other technical and electronics repair) were easily transferable to the civilian sector. The other five military occupations (service/supply, administrative, infantry/combat and communications/intelligence) did not increase earnings as fast as civilian experience.

2. Berger and Hirsch (1983) found that Vietnam-era non-retired veterans did very poorly in the 1970's and were penalized for lost civilian training opportunities and establishment of seniority within a civilian organization because of lost time while in the military. Veterans were also faced with deteriorating earnings opportunities, which were caused by an abundant supply of workers (a result of the baby-boom generation) and other economic factors. The study also concluded that a veteran's adjustment to and assimilation into the civilian labor market was relatively slow. Earnings differentials between veterans and non-veterans varied

with other factors, including schooling, cohort and age. Another finding was that the typical veteran's age-earnings profile was initially steeper and lower than the age-earnings profile of a typical non-veteran. However, Vietnam-era veterans relative earnings improved sufficiently by the end of the period such that no long-run earnings penalty was apparent.

3. Goldberg and Warner (1986) investigated the effects of military and civilian experience on the earnings of veterans and found that earnings differences arose due to the types of training that a veteran received while in the military. They found that technically trained individuals (medical, electrical, electronic and equipment repair) were perfect substitutes for their respective civilian careers and that longer military careers in these categories do not adversely affect or detract from potential civilian earnings. However, other occupations (infantry/combat, communications, service/supply administrative) military experience does increase civilian earnings but not at the same rate as civilian experience.

4. Bryant, Samaranayake and Wilhite (1993) investigated the impact of on-the-job experience and training in the military on the civilian wages of veterans. They found that military training can be beneficial, increasing civilian wages if the skills are easily transferable. However, individuals with general military experience do not do as well as individuals with transferable skills. Other factors that affect wage differences can include the race and education of individuals. For example, the study finds whites have a larger wage penalty than non-whites and education is directly related to the magnitude of the penalty. This study also agrees with previous studies that certain technical military training is beneficial and can increase civilian wage rates, but that the specific military experience may not be beneficial and could actually decrease the subsequent civilian earnings for veterans.

5. Angrist and Krueger (1994) investigated the earnings of World War II non-retired veterans. Utilizing 1960, 1970, 1980 census data they concluded that WW II veterans do not earn more than comparable veterans, but may actually earn less. The study also reveals that WW II veterans may have earned more had they not served in the military and that military service may have reduced the earnings potential of these veterans. The reasoning for this conclusion is based on the premise that the screening process undergone by veterans tends to reject individuals with low earnings capacities, ( individuals that are somehow disabled or do poorly on the entrance exams). Since the requirement to become a member of the military service is to be physically capable and of a certain mental capacity, the selection process accepts individuals who could have done well in the civilian sector had they not joined the military. As a result of joining the military, these individuals have forgone the opportunity to gain civilian labor market experience.

The review of some of the previous literature illustrates that there is no clear consensus on how military service, experiences and training affect the possible second career earnings of military veterans on retirees. Factors such as amount of work, type of second career occupation, non-labor income, transferability of skills, race, education and rank are all important in determining the possible second career earnings of a retiree. This study will also explore earnings differential of military retirees. For this study, one control and two comparison groups are created. The control group consisted of military retirees with twenty or more years of military service and the two comparison groups were: (1) veterans in the civilian labor force with less than twenty years of service, and (2) civilians with no military service. Differences between retirees with 20 years or more of military service and these two comparison groups will be examined to determine how military retirees fare in the civilian labor market.



### **III. DATA AND PRELIMINARY ANALYSES**

#### **A. THE DATA**

This study utilizes data from the 1990 Census of Population and Housing, Public Use Microdata Samples (PUMS). PUMS is a computer accessible file containing records for a 5 percent sample of housing units in the United States and contains information on the characteristics of each housing unit and the occupants in the unit. The methodology for constructing the data sets is as follows. The first data set was created by extracting the entire population of male military retirees from the 1990 PUMS, which resulted in a population size 103,124 military retirees. A second data set was created by taking a 1 percent sample of the 5 percent PUMS. This produced a sample of 415,861 men, some of which are non-retired veterans and some of which never served in the military. Both data sets were combined for a total initial sample size of 519,085 males between the ages of 17-66. The newly merged data set was then restricted in the following way: (1) non-U.S. citizens were deleted, (2) current active duty service members were deleted, and (3) individuals younger than 37 and older than 64 were deleted. The age interval is based on the premise that a military retiree could have joined the military at the age of 17, consequently they would be eligible for retirement at the age of 37. The upper limit of 64 was chosen because civilians often retire at the age of 65 and leave the labor force. These restrictions resulted in a final useable sample size of 225,022 individuals of which 34,833 (15.4 percent) were military retirees.

#### **B. LABOR FORCE PARTICIPATION**

The labor force participation rates of the various groups were determined by utilizing the merged data set of 225,022 observations. Individuals in the PUMS were asked their current labor force participation status and, if they were

unemployed, whether they were looking for work. Table 3 summarizes the labor force participation rates for the various groups. Individuals who are presently holding a job or are actively seeking a job are considered to be "in the labor force." All others are considered to be "out of the labor force."

**Table 3. Labor Force Participation Status**

	Entire sample	Civilians (non-veterans)	Retirees	Civilian-Vets LT 20 yrs
NOT IN LABOR FORCE (percent)	18.07	14.99	21.56	19.57
IN THE LABOR FORCE (percent)	80.63	84.26	74.48	79.88
EMPLOYED (percent)	77.50	80.95	71.70	76.77
LOOKING FOR WORK (percent)	3.13	3.31	2.78	3.11

Source: Computations from 1990 PUMS data.

Table 3 reveals that the proportion of military retirees not in the labor force, 21.56 percent, is substantially higher than the proportion (14.99 percent) of non-veteran civilians not in the labor force, and the proportion (19.57 percent) of non-retired veterans with less than 20 years of service not in the labor force. The differential between retirees and veterans with less than twenty years is 1.99 percentage points, while the difference between retirees and civilians is 6.57 percentage points. As the means indicate, a larger percentage of retirees choose not to participate in the labor force than either of the comparison groups.

Conversely, the percentages of retired individuals who are currently employed is 9.25 percentage points lower than that of non-veteran civilians (71.70 vs 80.95 percent, respectively). Thus, the difference between the labor force participation status of retirees and others is accounted for by decisions not to work, not by differences in unemployment rates.

The percentage of retirees and non-retired veterans who are employed also favors that of non-retired veterans. The mean employment rate for veterans with less than twenty years of service is 5.07 percentage points higher than that of retirees (74.48 versus 76.77 percent).

The percentages of individuals in the labor force who are unemployed and looking for work is lowest among retirees (2.78 percent) and highest among civilians (3.31 percent). Only a 0.33 percentage point differential exists between military retirees and veterans with less than twenty years of service and only a 0.53 point disparity exists between retirees and civilians.

As Table 3 illustrates, the different groups exhibit various labor force participation tendencies. The retiree group has the highest percentage of non-labor force participants, likewise it also has the lowest number of employed individuals in the labor force. Retirees also have the lowest percentage of individuals who are unemployed and looking for work. These tendencies could be influenced by the fact that retirees have an additional source of non-labor income. As a result of this supplemental income, there could be less of an incentive for retirees to enter the civilian labor force and therefore they may choose not to work and retire altogether.

### **C. VARIABLE MEANS**

Because this study concentrates on the work tendencies of military retirees and how they compare with civilians and non-retired veterans in 1989, additional restrictions were applied to the data set. The following additional restrictions were applied to the 225,022 individuals in the sample. Individuals were deleted from the data set: (1) if they had zero yearly earnings in 1989, (2) if they had zero wage and salary income in 1989, (3) if they worked zero weeks in 1989, (4) if they worked zero hours in 1989, and (5) if they did not work in 1989. Finally, self employed individuals were deleted due to the wide fluctuations of weeks and hours worked

in 1989 for this group. The final data set thus encompasses individuals who were employed in 1989 and who had positive income, wages, hours and weeks worked in 1989. This new data set, which will also be utilized in further regression analysis, had 144,856 observations of which 26,290 (18.15 percent) were military retirees, 56,568 (39.05 percent) were veterans with less than twenty years of service, and 60,954 (42.07 percent) were non-veteran civilians. Table 4 lists the means of various demographic characteristics and earnings levels for these groups.

**Table 4. Sample Means (Or Proportions) for Individuals Employed in 1989 by Group**

DESCRIPTION	Entire Sample	Civilians (non-veterans)	Retirees	Civilian-Vets LT 20 yrs.
AGE (in years)	48.66	45.63	52.81	49.97
BLACK (percent)	8.26	9.85	8.22	6.58
WHITE (percent)	86.98	84.29	88.66	90.71
MARRIED (percent)	80.56	77.91	88.10	81.34
DISABLED (percent)	8.69	7.90	12.48	9.07
SOUTH (percent)	37.37	34.39	52.12	32.56
WEST (percent)	20.68	18.71	27.37	20.08
MIDWEST (percent)	22.38	24.89	11.47	25.16
YEARS OF MILITARY SERVICE	5.45	0.00	22.10	3.31
AVERAGE HOURS WORKED LAST WEEK	39.30	40.34	37.58	38.65
USUAL HOURS WORKED IN 1989	42.93	43.72	42.32	43.13
AVERAGE WEEKS WORKED IN 1989	47.41	47.82	46.97	47.34
YEARLY EARNINGS (\$)	33,829	33,976	29,458	34,014
WAGE AND SALARY INC. ( \$)	33,389	33,508	29,219	33,624
INTEREST/RENTS/DIVIDE INC. (\$)	1,457	1,265	1,298	1,543

**Table 4 (Continued)**

DESCRIPTION	Entire Sample	Civilians (non-veterans)	Retirees	Civilian-Vets LT 20 yrs.
SOCIAL SECURITY INC. (\$)	160	74	168	205
PUBLIC ASSISTANCE INC. (\$)	44	27.88	55	26
RETIREMENT INC. (\$)	2514	228	11,233	948
TOTAL PERSONAL INC.(\$)	37,795	35,465	43,016	36,732
PART-TIME EMPLOYMENT (percent)	16.86	16.86	19.41	17.82
HIGH SCHOOL NO DEGREE (percent)	15.71	22.86	3.83	13.79
HIGH SCHOOL DEGREE (percent)	28.35	25.17	27.48	32.76
ASSOCIATE'S DEGREE (percent)	3.44	2.73	4.65	3.69
SOME COLLEGE (percent)	21.23	16.44	29.69	22.87
BACHELOR'S DEGREE (percent)	14.84	16.15	13.04	14.52
MASTER'S DEGREE (percent)	8.39	9.25	11.86	6.02
PHD (percent)	3.48	4.95	2.03	2.65
PRIVATE INDUSTRY (percent)	76.28	81.83	61.00	78.51
LOCAL GOVERNMENT (percent)	8.69	9.12	7.05	8.45
STATE GOVERNMENT (percent)	6.21	5.63	8.33	5.41
FEDERAL GOVERNMENT (percent)	8.69	3.29	23.50	7.49
SAMPLE SIZE	144,856	60,954	26,290	56,568

Source: Computations from 1990 PUMS data.

Table 4 reveals that the average age of the individuals in the different groups range from 45 and 52 years of age and that the majority of all individuals in the three groups are likely to be white and married. The largest percentage of retirees reside in the south in comparison to the other areas of residence. The table also indicates that retirees are more likely to have some type of disability(12.48 percent

of retirees compared to 7.9 and 9.07 percent of civilians and non-retired veterans, respectively). Means for the number of weeks worked in 1989 indicate that military retirees on average worked one week less in 1989 (46.97) than the comparison groups, non-veteran civilians (47.82) and non-retired veterans (47.34). As evident from the table, these differences are relatively small, ranging from a difference of .85 percent of a week (retirees vs civilians) to a difference of .37 percent of a week (retiree vs veterans with less than 20 years). Again, the usual hours per week in 1989 indicate that military retirees work the least of all groups, and that with the largest differential (1.4 hours) is between military retirees (42.32 hours) and non-veterans civilians (43.72 hours). However, this differential in hours worked per week increases to 2.76 hours per week when respondents were asked how many hours they worked last week. The variable hours worked last week is likely to be more representative of the actual hours an individual works per week in 1989, since it did not require the individual to reconstruct or remember the hours worked per week in 1989 but only hours worked last week. The smallest differential in hours worked last week (1.07 hours), is between retirees and veterans with less than twenty years of service.

Part-time labor force participation was determined by utilizing the variable hours worked last week. Individuals who worked less than 35 hours per week were considered part-time workers. More military retirees are part time workers, 19.41 percent, than civilians, 16.86 percent, or veterans, 17.82 percent. In general, it appears that military retirees are somewhat less likely to work than the comparison groups, and when they do work, they are more likely to work part-time.

The means for the wage and salary income variable indicates that retirees earn on average \$4,347 less annually than both comparison groups. When comparing retirees to the other groups, the largest differential exists with veterans

with less than twenty years of service, \$4,405, followed by civilians, \$4,289. When comparing retirees to non-veteran civilians, we find that retirees earn roughly \$4,200 less per year from their jobs, but offset this by earning \$11,233 more in retirement income. Thus, military retirees not only work less, but when they do work they take jobs that pay less. Difference in the mean earnings of veterans and retirees indicate that there is a negative correlation between wage and salary income and the number of years of service. This data confirms the human capital theory of investment, since individuals who enter the civilian labor market earlier than others have an opportunity to acquire skills and training relative to their current job and establish seniority in the civilian labor market. Consequently, their wage and salary income should be, and is, significantly higher than that of retirees or non-retired veterans who enter the civilian labor market later in life. This same pattern is observed for the mean values for yearly earnings.

Analysis of the various income differentials between the sample groups in terms of interest, rents and dividend, social security and public assistance, reveal negligible differences. However, retirement income as expected, is highest for military retirees. Retirees receive \$11,233 (4,826 percent) more than civilians and \$10,285 (1,085 percent) more than veterans with less than twenty years. Clearly, military retirees have a significant advantage in receiving approximately \$11,000 more in retirement income than the other two comparison groups. When combining the mean values for wage and salary income and retirement income, non-veteran civilians earn \$33,736 annually, retirees earn \$40,452, and veterans with less than twenty years earn \$34,572.

The fact that a retiree receives non-labor income in the form of retirement pay and other benefits could directly affect his tendencies to work. For example, Table 3 illustrated that retirees have the highest non-labor force participation rate

and Table 4 illustrated that retirees work fewer hours per week and fewer weeks per year, for less wage and salary income.

A retiree's choice to work less than comparable civilians or non-retired veterans could be a direct result of numerous factors, some of which are discussed here. Since retirees receive a substantial amount of non-labor retirement income, they may opt to work fewer hours. Another possibility is that retirees may choose leisure over work. The lower wage and salary income of retirees could be directly attributed to a lack of training, civilian experience or seniority in their second career job. Alternatively, it could arise due to retirees taking jobs that pay less than their skills could normally command.

In analyzing the educational levels of the comparison groups, Table 4 indicates that a larger percentage of retirees have some type of advanced education in comparison to their counterparts. Approximately 4.65 percent of retirees have an associate's degree, between one and two percentage points more than civilians and veterans with less than twenty years. When comparing percentages of individuals with some college courses, we find that retirees have the largest percentage. Approximately 29.69 percent of retirees have some college courses versus only 16.44 percent for non-veteran civilians, and 22.87 percent of veterans with less than twenty years of service. The civilian comparison group has the largest percentage of individuals with a bachelor's degree (16.15 percent); however, a larger percentage (11.86 percent) of college graduate retirees continue their education and receive a master's degree. These differences in education levels may be due to formal education received in the military.

Table 4 also reveals that military retirees enter two major fields of work upon retirement from the military, private industry and the federal government. Sixty-one percent of military retirees are in private industry compared to 81.83

percent of the civilian work force, a difference of 20.83 percentage points. However, 23.50 percent of retirees join the federal government versus only a mere 3.29 percent of civilians, which equates to a 20.21 percentage point differential between the two groups. The means for veterans are more closely patterned after non-veteran civilians. These differences in retirees' preferences for government employment may be due to military retirees receiving preferential treatment in the hiring process because of their prior military service and the fact that years of prior military service can be applied toward retirement years in the federal government. The table indicates that upon retirement a large percentage of retirees opt to become federal employees. Therefore, one might conclude that individuals who retire from the military are familiar with and are more inclined toward the structured work environment and benefits that a federal government job may offer. For example, the proportions choosing the local and state government work are similar amongst the comparison groups. However, a larger percentage of retirees enter state government compared with civilians and non-retired veterans.

To summarize the findings from Table 4, a larger percentage of retirees tend not to work as much as the comparison groups. When they do work, a larger percentage work part-time and for the government. Finally, retirees work relatively the same hours as non-veteran civilians and non-retired veterans, but for less wage and salary income.

#### **D. MODELS AND EXPLANATORY VARIABLES**

An ordinary least squares (OLS) earnings model with two separate data sets was constructed to estimate the earnings of military retirees. The first data set contains non-veteran civilians and military retirees, the second data set contains veterans with less than twenty years of service and military retirees. The natural log of the 1989 wage and salary income was the dependent variable. The

regression model specified is a log-linear model where the estimated coefficient represents the percentage change in the wage and salary measure for a given unit of change in the explanatory variable. The general model patterned after Mincer (1970) is specified as follows:

$$\text{LINC} = B_0 + B_1\text{RETIRED} + B_2\text{GOVMENT} + B_3\text{LRETINC} + B_4\text{WEEK89} + B_5\text{PARTTM} + B_6(W) + B_7(X) + B_8(Y) + B_9(Z) + E, \quad (1)$$

where the LINC represents the natural log of wage and salary income for 1989,  $B_i$  represents the percentage increase or decrease in the wage and salary income for each variable in the earnings equation, W is a vector of demographic variables (married, black and disabled), X is a vector of educational attainment variables, Y is a vector of regional variables and Z consists of the variables AGE and AGESQ. Finally, E represents the error term that is assumed to be randomly distributed with a mean of zero. The explanatory variables and their predicted effects on the wage and salary income used in this thesis are illustrated below in Table 5.

**Table 5. Definition and Expected Signs of the Explanatory Variables in the Earnings Models**

VARIABLE NAME	Variable Definition	Predicted Effects on Wage and Salary Income
<b>RETIRED</b>	1 if years of service GE 20 0 otherwise	-
<b>MARRIED</b>	1 if married 0 otherwise	+
<b>BLACK</b>	1 if black 0 otherwise	-
<b>DISABLED</b>	1 if disabled 0 otherwise	-
<b>SOUTH</b>	1 if resides in the south 0 otherwise	-

**Table 5 (Continued)**

<b>VARIABLE NAME</b>	<b>Variable Definition</b>	<b>Predicted Effects on Wage and Salary Income</b>
<b>WEST</b>	1 if resides in the west 0 otherwise	-
<b>MIDWEST</b>	1 if resides in the Midwest 0 otherwise	-
<b>HSND</b>	1 if no high school degree 0 otherwise	-
<b>SOMECOL</b>	1 if some college education 0 otherwise	+
<b>ASSOC</b>	1 if associate's degree 0 otherwise	+
<b>BACH</b>	1 if bachelor's degree 0 otherwise	+
<b>MAST</b>	1 if master's degree 0 otherwise	+
<b>PHD</b>	1 if PHD 0 otherwise	+
<b>WEEK89</b>	Weeks worked in 1989	+
<b>PARTTM</b>	1 if hours worked LE 34 0 otherwise	-
<b>GOVMENT</b>	1 if class of work is government 0 otherwise	+/-
<b>LRETINC</b>	Natural Log of retirement income	-
<b>AGE</b>	Age	+
<b>AGESQ</b>	Age squared	-

The effects of demographic characteristics and geographic locations are captured mostly by dummy variables. The demographic characteristics variables include military retiree status (RETIRED =1), marital status (MARRIED=1), race (BLACK=1), and health limitations (DISABLED=1). It was decided to leave those with disabilities in the sample because a high proportion of retirees leave the

military with a disability. Geographic location variables include south (SOUTH=1), west (WEST=1), and Midwest (MIDWEST =1). Educational attainment is also captured by dummy variables for no high school degree (HSND=1), some college education (SOMECOL=1), a bachelors degree (BACH=1), a masters degree (MAST=1) and finally a doctorate degree (PHD=1). Several variables are used to account for employment factors. These variables are the number of weeks worked in 1989 (WEEK89), a dummy variable for part-time employment (PARTTM=1), and a dummy for whether the individual was a government employee at the local, state, or federal level (GOVMENT=1). The effect of the size of one's retirement income is captured by the natural log of retirement income (LRETINC). Finally, the variables for age (AGE) and age squared (AGESQ) are included in the model.

Based on human capital theory and the prior literature discussed in Chapter II, as well as the exploratory data analysis above, a negative effect on earnings for individuals that retired from the military (RETIRED) is anticipated. Previous studies discussed in Chapter II indicate retirees entering the civilian labor market can be disadvantaged in necessary skills, experience and training that the civilian labor market rewards, consequently there should be a negative effect on the wage and salary income of retirees. A negative effect is also expected from retirement income (LRETINC), since additional non-labor income can influence individuals to work less, thereby affecting their wage and salary income. Individuals receiving additional non-labor income may opt for more leisure than work, or may even take jobs that pay less, since they may not be as reliant on their wage and salary income as their peers are who are not receiving additional non-labor income.

The educational attainment dummy variables listed above, with the exception of HSND, should be positive and the magnitude of each variable should increase

with the level of attained education, since increased education is correlated to an individuals abilities. A negative effect for the variable black is anticipated since blacks tend to earn less than whites, for a number of reasons, as do those who are physically disabled. The regional dummy variables should be negative when compared to the North East. The labor force participation category of PARTTM is expected to be negative and is based on the premise that working fewer hours per week will result in lower wage and salary income coupled with the fact that there is evidence to suggest that part-time workers receive a lower wage rate than full-time workers. WEEK89 is expected to be positive; the more weeks worked in 1989 will result in a higher income for 1989. Finally, AGE and AGESQ should have positive and negative effects, respectively, as suggested by human capital theory. These effects are based on the premise that individuals gain more experience as they age and the parameter estimate for age should be positive reflecting this greater experience in the form of a higher wage and salary income. The AGESQ variable should be negative reflecting the standard convex age-earnings profile.

Multiple specifications of the basic earnings model, equation (1), were estimated to analyze the earnings of military retirees. First, a full sample data set was created and restricted to males who were not self employed and not in the military, and who had positive hours, weeks and wage and salary income in 1989. In order to isolate the effects of WEEK89 and PARTTM three separate regression models were created. The first, version (I), included all the variables discussed in Table 5 and equation (1). The second, version (II), deleted the WEEK89 variable and the third, version (III), deleted both the WEEK89 variable and the PARTTM variable. The three versions were run on the combined data set of retirees versus non-veteran civilians as well as the combined data set of retirees versus veterans with less than twenty years of service.

In order to eliminate labor force supply and demand factors such as the number of weeks or hours worked, a full-time year-round (FTYR) data set was then created to eliminate possible selection biases. The full sample data set was further restricted to FTYR workers (GE 35 hours per week and GE 50 weeks per year). This relatively homogeneous sample, may allow a more accurate analysis of the earnings effect of being retired and receiving retirement income. For the analysis of the FTYR data set only the version III regression will be required.

#### **IV. EMPIRICAL RESULTS FOR FULL SAMPLE**

This chapter presents and discusses the results of the models examined in the previous chapter and is divided into two sections. Section A utilizes the full sample data set and discusses the three versions of the basic regression comparing retirees with non-veteran civilians and retirees with non-retired veterans. This method of discussing both comparisons groups was selected due to the similarities between their results. Section B is composed of the age-earnings profiles for the full sample retirees versus non-veteran civilians and retirees versus veterans (non-retired).

##### **A. RETIREES VERSUS NON-VETERAN CIVILIANS AND NON-RETIRED VETERANS (FULL SAMPLE)**

This section analyzes the effects of the various explanatory variables on the combined data set of military retirees versus (non-veteran) civilians and non-retired veterans. Table 6 presents the estimated coefficients and t-values for the combined data set of veterans and non-veteran civilians. Table 7 represents the estimated coefficients and t-values for the combined data set of veterans and non-retired veterans.

Three versions of the model were created, version (I) is the baseline model and includes the standard demographic, educational, location, work and retirement income variables discussed in equation (1) above. Version (II) drops the variable WEEK89 and version (III) drops the variables WEEK89 and PARTTM. These variables were deleted to isolate the effects of the RETIRED and LRETINC variables on a retiree's wage and salary income.

**Table 6. Earnings Regression for a Sample of Military Retirees  
Versus a Sample of Non-Veteran Civilians**

VERSION	I		II		III	
VARIABLE	Coefficient	T-Value	Coefficient	T-Value	Coefficient	T-Value
INTERCEPT	6.62	60.54	7.95	66.44	6.67	53.59
MARRIED	.145	22.78	.216	31.05	.282	38.87
BLACK	-.159	-18.05	-.165	-17.08	-.185	-18.23
HSND	-.282	-35.74	-.312	-36.92	-.377	-41.62
ASSOC	.026	1.84	.045	2.86	.059	3.55
SOMECOL	.067	9.31	.085	10.82	.095	11.69
BACH	.332	42.54	.351	41.02	.377	42.02
MAST	.456	49.94	.454	45.30	.477	45.53
PHD	.676	53.92	.707	51.36	.743	51.58
SOUTH	-.106	-14.78	-.131	-16.76	-.129	-15.79
WEST	-.032	-4.00	-.056	-6.33	-.067	-7.32
MIDWEST	-.086	-10.87	-.096	-10.98	-.097	-10.73
DISABLED	-.168	-18.39	-.282	-28.20	-.473	-46.01
AGE	.066	14.68	.088	17.79	.139	27.06
AGESQ	-.007	-13.93	-.0009	-17.23	-.001	-27.33
GOVMENT	-.029	-4.47	-.019	-2.62	-.006	-.786
LRETINC	-.035	-34.70	-.038	-35.18	-.043	-37.45
RETIRED	.142	15.41	.145	14.24	.155	14.59
PARTTM	-.285	-36.69	-.732	-94.27	--	--
WEEK89	.038	138.68	--	--	--	--
R <sup>2</sup>	.3964	--	.2469	--	.1749	--
N	92,884	--	92,884	--	92,884	--
F-Statistic	4,769.922	--	1,691.767	--	1,157.733	--

Source: Computations from 1990 PUMS data.

**Table 7. Earnings Regression for a Sample of Military Retirees Versus a Sample of Non-Retired Veterans**

VERSION	I		II		III	
VARIABLE	Coefficient	T-Value	Coefficient	T-Value	Coefficient	T-Value
INTERCEPT	6.33	49.35	7.36	52.13	5.42	36.93
MARRIED	.097	14.23	.168	22.35	.235	29.69
BLACK	-.119	-11.81	-.012	-10.62	-.131	-11.17
HSND	-.202	-22.04	-.229	-22.79	-.271	-25.58
ASSOC	.048	3.55	.055	3.73	.081	5.14
SOMECOL	.060	9.06	.075	10.12	.087	11.35
BACH	.315	39.40	.331	37.52	.349	37.765
MAST	.458	45.19	.456	40.69	.481	40.84
PHD	.711	45.37	.745	43.09	.785	43.19
SOUTH	-.101	-13.58	-.124	-15.13	-.129	-14.99
WEST	-.029	-3.57	-.049	-5.49	-.060	-6.39
MIDWEST	-.113	-13.77	-.122	-13.48	-.130	-13.74
DISABLED	-.162	-17.99	-.269	-27.22	-.454	-44.57
AGE	.078	15.28	.112	19.74	.189	32.36
AGESQ	-.0007	-14.36	-.001	-19.10	-.002	-32.77
GOVMENT	-.012	-1.90	.007	1.10	.019	2.53
LRETINC	-.033	-39.25	-.042	-44.99	-.051	-52.35
RETIRED	.079	10.04	.115	13.21	.159	17.47
PARTTM	-.256	-32.77	-.739	-95.56	--	--
WEEK89	.038	137.806	--	--	--	--
R <sup>2</sup>	.3628	--	.2246	--	.1436	--
N	87,530	--	87530	--	87530	--
F-Statistic	2,622.794	--	1,407.957	--	863.519	--

Source: Computations from 1990 PUMS data.

Tables 6 and 7 include the values for the parameter estimates, t-values, number of observations,  $R^2$  and F-statistics for the three versions of the two models described above. As both Tables 6 and 7 indicate, the models are in line with the predicted effects on wage and salary income, with the exception of the positive parameter estimate for the RETIRED variable, which was anticipated to be negative.

The parameter estimates for the MARRIED variable are positive, significant and increase in magnitude with the deletion of WEEK89 and PARTTM in the various versions in Tables 6 and 7. The effect of being married in both groups is relatively the same, the ranges for the parameter estimates are the same (.137) (i.e., .145 to .282); however, the base value for retirees versus non-veteran civilians is approximately .05 higher than the retired versus non-retired veterans (i.e., Version 1 in Table 4 vs. Version 1 in Table 5). This equates to a .05 percent increase in wage and salary income for married individuals in the retired and non-veteran civilian comparison group.

The coefficients of BLACK and HSND in both Tables 4 and 5 are both negative as anticipated. This negative effect is in line with previous studies that indicate non-white individuals earn less than white individuals and that less educated individuals are also likely to earn a lower wage and salary income. The other education variables for both regression models are positive and statistically significant as anticipated. Tables 6 and 7 confirm that a positive percentage increase can be anticipated for each higher level of education attained.

As anticipated, the location variables were negative and are in line with other previous studies that control for these location variables (Danzon, 1980). The only differences that exist for the retired versus non-retired veterans and the retired versus the non-veteran civilian models is that living in the south has a greater

negative effect for retirees versus non-veteran civilians and living in the Midwest has a greater negative effect for retirees versus non-retired veterans. In both cases this equates to an average of a .122 percent (i.e., average of  $-.106$ ,  $-.131$ ,  $-.129$ ) reduction in wage and salary income, for living in the south or the Midwest.

The variable DISABLED is negative as anticipated since an individual's poor health or physical limitations have a direct effect on that individual's work capabilities. The variable is statistically significant for all three versions in both models. The parameter estimates are slightly greater in Table 7 (from  $.006$  to  $.019$ ) than in Table 6. As the variables WEEK89 and PARTTM are deleted, the value for the coefficient on DISABLED increases. This could be the result of the DISABLED variable picking up some of the effects of WEEK89 and PARTTM since handicapped individuals are more likely to have limitations on the number of weeks worked per year or the number of hours worked per week.

The variables AGE and AGESQ are positive and negative, respectively, and are in line with economic theory. However, the variables AGE and AGESQ have the greatest effect on the model with retirees versus the non-retired veterans. The average effect of the AGE variable for all three versions of the retirees versus non-veteran civilians is  $.098$  (an average of  $.066$ ,  $.088$ ,  $.139$ ) and the average effect for retirees versus non-retired veterans is  $.126$  (an average of  $.078$ ,  $.112$ ,  $.189$ ) a difference of  $.028$ . This indicates that as a retiree gains more experience with age, he is rewarded with a higher percentage increase in wage and salary income when compared to a non-retired veteran rather than a non-veteran civilian.

Although Table 4 revealed that a higher percentage of retirees tended to work for government agencies, the parameter estimates for the variable GOVMENT in both models are inconsistent and in some versions statistically insignificant. This result indicates that government employment of retirees at the state, local and

federal levels may not have a significant influence on the wage and salary income for military retirees. Other factors such as retirement or medical benefits, etc. offered by government organizations may be influencing a retiree's choice to work for government agencies.

The effects of WEEK89 and PARTTM are in line with the predicted effects on the wage and salary income made earlier. In both models the parameter estimates for WEEK89 and PARTTM in Tables 6 and 7 are all statistically significant. In Version (I) of both models the coefficient for WEEK89 is equal to .038 and as this variable is removed from the regression equations we see an increase in the other variables of the model as mentioned above. However, the largest change occurred in the parameter estimates for the PARTTM variable in both models (Table 6 and 7). In both models the PARTTM parameter estimates decreased by .45 and .47, respectively, indicating that some of the effect of the PARTTM variable was being captured by WEEK89. When the variable PARTTM was removed, both models experienced insignificant changes, with little effect on the other parameter estimates.

The deletion of the WEEK89 and PARTTM variables from both models, had little effect on the RETIRED and LRETINC variables. Although the parameter estimates for these variables did increase in magnitude, the effect was relatively insignificant. This indicates that the effect of the being retired and receiving a retirement income is relatively constant in both models, supporting the robustness of these estimates. The LRETINC in the retired versus the non-veteran civilian model decreased by .003 (-.035 to -.038) and .005 (-.038 to -.043) between the three versions. While the parameter estimates for the retired versus the non-retired civilians LRETINC decrease by a constant .009 (-.033 to -.042 to -.051). When comparing both models, the strongest negative effect of LRETINC occurs in the

comparison between retirees and non-retired veterans in the version (III) model. However, version (I) of the same model has the lowest negative impact on an individual's wage and salary income of -.033. The drop in the  $R^2$  can be attributed to the systematic deletion of the WEEK89 and PARTTM variables, since these variables explain a significant amount of variation in the goodness of fit of the models.

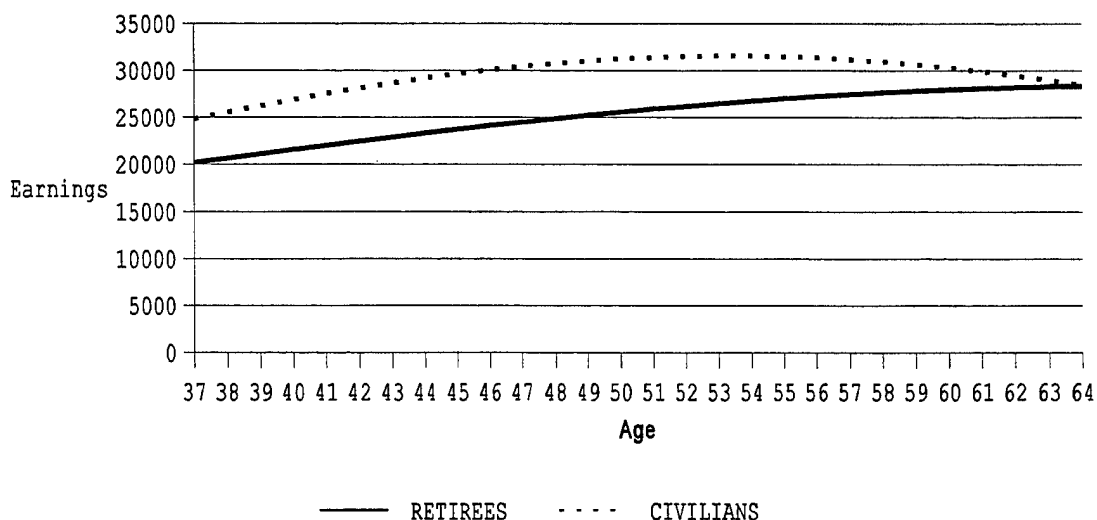
While the effect of the RETIRED variable is positive and significant in both models, the combined effect of RETIRED and LRETINC are negative for both models. The combined effect is equal to the natural log of retirement income times the parameter estimate for LRETINC added to the parameter estimate for the RETIRED variable. In the model comparing retirees versus non-veteran civilians (Table 6), the combined effect of being retired and receiving a retirement income equates to -.185 for version (I), -.209 for version (II) and -.246 for version (III). For the retirees versus non-retired veterans (Table 7) the combined effect is -.228 for version (I), -.277 for version (II) and -.317 for version (III). As is evident from the calculations, the combined net effect of being a military retiree and receiving retirement income is still negative. It appears that the largest disadvantage for retirees occurs when there is non-retired veterans. In order to more accurately illustrate the possible differences in wage and salary income, an age-earnings profile was created for both models and is presented in the next section.

## **B. AGE-EARNINGS PROFILES**

Age-earnings profiles were created to graphically illustrate the path of wage and salary income for the three groups. The groups were separated into three data sets: retirees, civilians and veterans with less than twenty years of service. Then, a regression equation was estimated to determine the parameter estimates of the earnings function separately for each of the three samples. Appendix A lists the

parameter estimates for the variables. In constructing the age-earnings profiles for all three data sets only the intercept, MARRIED, SOMECOL, SOUTH, WEEK89 and LRETINC parameter estimates were utilized (i.e., most of the other dummies were set equal to zero). The selection of these variables for the profile is based on the fact the highest percentage of individuals for all three groups are married with some college education and live in the south. LRETINC was included to determine the impact it had on the age earnings profile.

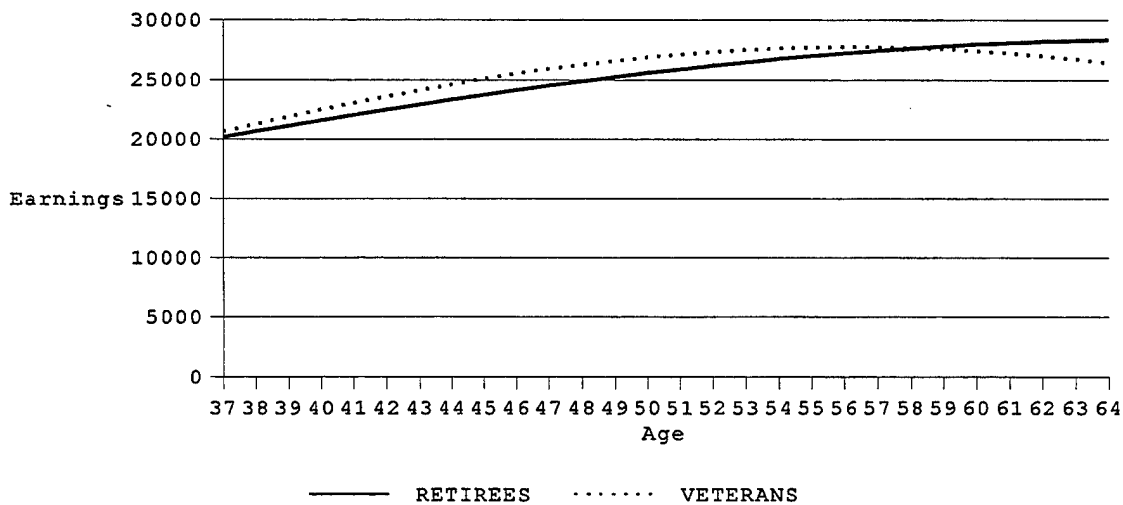
An age-earnings profile comparing the lifetime earnings of military retirees and non-veteran civilians was created. Figure 2 reveals that military retirees starting a second career in the civilian labor force are significantly disadvantaged in comparison to their civilian counterparts, earning \$4,633 (23 percent) less than a comparable civilian at the age of 37. The slope of the retiree's age-earnings profile is equal to .023 at the age of 38 and gradually declines in value (to .002) by the age of 64. The graph also reveals that the profile for retirees never peaks and is always upward sloping indicating wage and salary income of retirees always increases in their second career. The civilians profile has a slope of .025 at the age



**Figure 2. Retirees Versus Non-Veteran Civilians Age-Earnings Profile**

of 38 decreasing in value to .0015 at the age of 53 where it peaks and starts a downward decline. It is at this point that a non-veteran civilian starts to experience a decrease in wage and salary income. This pattern reflects that observed in other studies of civilian age-earnings profiles. Figure 2 also reveals that a military retiree never overtakes his civilian counterpart and his second career losses, based on the age earnings profile, equates to \$123,037 when compared to a non-veteran civilian. Utilizing a discount rate of 5 percent, the present value of the loss for a retiree's second career between the age of 37 to 64 is equal to \$72,108.

An age-earnings profile was constructed to visually illustrate the two earnings profiles of retirees and non-retired veterans. As Figure 3 illustrates, the difference between retirees and veterans earnings are relatively small. Initially only a \$437 difference exists at the age of 37 between the two groups. The two profiles slopes differ by .007 at the age of 38, .023 for retirees and .03 for non-retired veterans. The non-retired veterans profile does peak at the age of 56 and are overtaken by retirees at the age of 59. Prior to the retirees overtaking veterans at the age of 59, retirees experienced a second career loss of \$21,142 but gained \$6,380 dollars after the age of 59. The net loss experienced by retirees is \$14,762 at the age of 64. However, the present value of the loss for a retiree's second career earnings from the age of 37 to 64, discounted at 5 percent equates to \$11,063. When comparing the results of the combined effect of being retired and receiving a retirement income to the results from the age-earnings profiles we find a discrepancy. In calculating the combined effects above in Section A, the most disadvantage comparison group is the one comparing retirees versus non-retired veterans. However the age-earnings profiles indicate the greatest loss occurs between the retirees versus the non-veteran civilians. One would expect these findings to agree, however the differences in the results can be attributed to the



**Figure 3. Retirees Versus Non-Retired Veterans Age-Earnings Profile**

methods used to analyze the data. The regression results are based on the pooling of the comparison and control groups, while the age-earnings profiles are based on the individual comparison groups only. Even though both methods do not agree on when retirees are most disadvantaged (in comparison to non-retired veterans or non-veteran civilians) both methods do agree that being a military retiree has a negative effect on the wage and salary earnings for these individuals.

## **V. EMPIRICAL RESULTS FOR A SAMPLE OF FULL-TIME YEAR-ROUND WORKERS**

This chapter presents and discusses the results of using full-time year-round sample to analyze earnings differences between retirees and the selected comparison groups. Section A of this chapter, discusses the restrictions for the full-time year round data set as well as the data set means for this sample. Section B utilizes the FTYR data set and discusses a regression model that compares retirees with non-veteran civilians, and computes the age-earnings profile for this comparison. Section C utilizes a second FTYR data set and discusses a regression model that compares retirees with non-retired veterans, and constructs the age-earnings profile for this comparison.

### **A. SAMPLE MEANS FOR FULL-TIME YEAR-ROUND (FTYR)**

In order to better estimate the wage and salary income of retirees, the full sample data set was further restricted to full-time year-round (HOURS GE 35 and WEEK89 GE 50) workers. This restriction was imposed in order to eliminate possible supply and demand factors that might skew the results. Factors like number of weeks worked or hours worked per week can be eliminated by imposing the appropriate sample restriction rather than by using controls in the estimating equation. The results of these estimations may provide a more accurate measure of a retiree's post-service career earnings for those pursuing full-time year-round employment. The imposed restrictions of full-time year-round to the full sample resulted in a total sample size of 108,358 a reduction of 36,498 individuals from the full sample. Table 8 illustrates the new sample means.

**Table 8. Sample Means for Full-Time Year-Round Workers**

DESCRIPTION	Entire Sample	Civilians (non-veterans)	Retiree	Civilian-Vets LT 20 yrs.
AGE (in years)	48.23	45.36	52.50	49.40
BLACK (percent)	7.69	8.86	8.44	6.09
WHITE (percent)	88.52	85.87	88.65	91.34
MARRIED (percent)	83.30	80.72	89.48	83.27
DISABLED (percent)	6.00	4.76	9.65	5.53
SOUTH (percent)	36.81	34.22	52.34	32.54
WEST (percent)	20.28	17.91	27.35	19.61
MIDWEST (percent)	22.73	25.31	11.19	25.22
YEARS OF MILITARY SERVICE	5.26	0	22.02	3.33
HOURS WORKED LAST WEEK	43.19	43.86	42.14	42.96
USUAL HOURS WORKED IN 1989	44.61	45.05	43.88	44.50
AVERAGE WEEKS WORKED IN 1989	51.87	51.87	51.91	51.88
YEARLY EARNINGS (\$)	37,115	37,866	33,338	38,024
WAGE AND SALARY INC. (\$)	36,722	37,393	33,121	37,639
INTEREST/RENTS/DIVIDEN INC. (\$)	1,351	1,303	1,217	1,464
SOCIAL SECURITY INC. (\$)	40	26	56	48.48
PUBLIC ASSIST INC. (\$)	17	9	50	10
RETIREMENT INC. (\$)	2,237	111	11,090	503
TOTAL PERSONAL INC. (\$)	40,754	39,106	46,492	39,922
HIGH SCHOOL NO DEGREE (percent)	13.66	19.77	3.40	11.72
ASSOCIATE'S DEGREE (percent)	3.62	2.92	4.64	3.91
SOME COLLEGE (percent)	22.01	17.10	30.10	23.65
BACHELOR'S DEGREE (percent)	15.88	17.55	13.05	15.36
MASTER'S DEGREE (percent)	8.32	9.14	12.02	5.75
PHD (percent)	3.73	5.34	2.09	2.72
PRIVATE INDUSTRY (percent)	76.45	82.2	59.21	78.04

**Table 8 (Continued)**

DESCRIPTION	Entire Sample	Civilians (non-veterans)	Retiree	Civilian-Vets LT 20 yrs.
LOCAL GOVERNMENT (percent)	8.11	8.35	7.23	8.04
STATE GOVERNMENT (percent)	5.87	5.59	7.71	5.56
FEDERAL GOVERNMENT (percent)	9.48	3.71	25.71	8.28
SAMPLE SIZE	108,358	46,219	19,462	42,677

Source: Computations from 1990 PUMS data.

As Table 8 illustrates, the retiree sample was reduced from 26,290 to 19,462 (26 percent) and makes up 17 percent of the FTYR worker sample. The sample of veterans with less than twenty years of military service fell by 13,891 to 42,677 (24 percent) and makes up 40 percent of the FTYR sample, and civilians lost 14,735 individuals (24 percent) resulting in a sample size of 46,219, which accounts for 43 percent of the FTYR sample. The only major effect in the FTYR sample was an increase in the mean value of wage and salary income for the comparison groups. Wage and salary income increased, by an average of \$3,767 for FTYR workers in comparison to the mean values in Table 4. This increase was expected since only individuals working more than 49 weeks a year and working more than 34 hours a week are included in the sample. Retirement income remained relatively constant for retirees but decreased by 46 percent to \$503 for non-retired veterans and 51 percent to \$111 for non-veteran civilians. The mean values for the educational and the other income variables remained relatively constant in the FTYR sample when compared to the original sample in Table 4.

By restricting the sample data set to FTYR individuals a more homogeneous data base was created to measure the effects of being retired and receiving a retirement income. Consequently, new regression models and age-earnings profiles

are estimated to measure the effects of RETIRED and LRETINC without the influences of WEEK89 and PARTTM. The result should be more indicative of the effects of RETIRED and LRETINC.

## **B. EARNINGS MODELS FOR RETIREES VERSUS NON-VETERAN CIVILIANS (FTYR SAMPLE)**

This model utilized the combined data set of FTYR employed retirees and non-veteran civilians to analyze the effects of military retirement status on wage and salary income. Since this data set was restricted to FTYR employees, it was unnecessary to utilize three separate versions of the model as was done before. Only version (III) is utilized in comparing the effects of non-veteran civilians and retirees. Table 9 lists the parameter estimates and t-values.

**Table 9. Earnings Regression for a Sample of Military Retirees Versus a Sample of Non-Veteran Civilians**

<b>VARIABLE</b>	<b>Coefficient</b>	<b>T-Value</b>
<b>INTERCEPT</b>	8.53	92.46
<b>MARRIED</b>	.187	33.53
<b>BLACK</b>	-.144	-19.11
<b>HSND</b>	-.255	-37.58
<b>ASSOC</b>	.078	6.72
<b>SOMECOL</b>	.120	20.53
<b>BACH</b>	.383	60.68
<b>MAST</b>	.490	65.05
<b>PHD</b>	.720	71.78
<b>SOUTH</b>	-.116	-19.75
<b>WEST</b>	-.018	-2.76
<b>MIDWEST</b>	-.071	-11.01
<b>DISABLED</b>	-.164	-18.89

**Table 9 (Continued)**

VARIABLE	Coefficient	T-Value
AGE	.066	17.23
AGESQ	-.0006	-16.44
GOVMENT	-.043	-7.64
LRETINC	-.012	-14.25
RETIRED	-.038	-4.56
R <sup>2</sup>	.2314	--
F-Statistic	1,228.71	--
N	69,399	--

Source: Computations from 1990 PUMS data.

The total sample size of this data set is 69,399 FTYR employees. When comparing FTYR non-veteran civilians to FTYR retirees, Table 9 reveals that all the expected effects for the parameter estimates are in line with the previous predictions. The parameter estimate for the RETIRED variable is negative and statistically significant as expected, unlike the previous regressions on the full sample data set where the coefficient was positive and significant.

The effects for the variables MARRIED, BLACK and HSND are statistically significant and in line with the predicted effects. The other educational variables increase in magnitude with an increase in educational attainment. Aside from the coefficient for the intercept, the educational attainment variables contribute the most to increasing a FTYR retiree's wage and salary income. The parameter effects of the education variables range from .078 to .720 all of which are statistically significant. The location of residence also has an effect on a retiree's second career post service earnings. As with the full sample, living in the south has the most negative effect on the wage and salary earnings of individuals in this data set. An

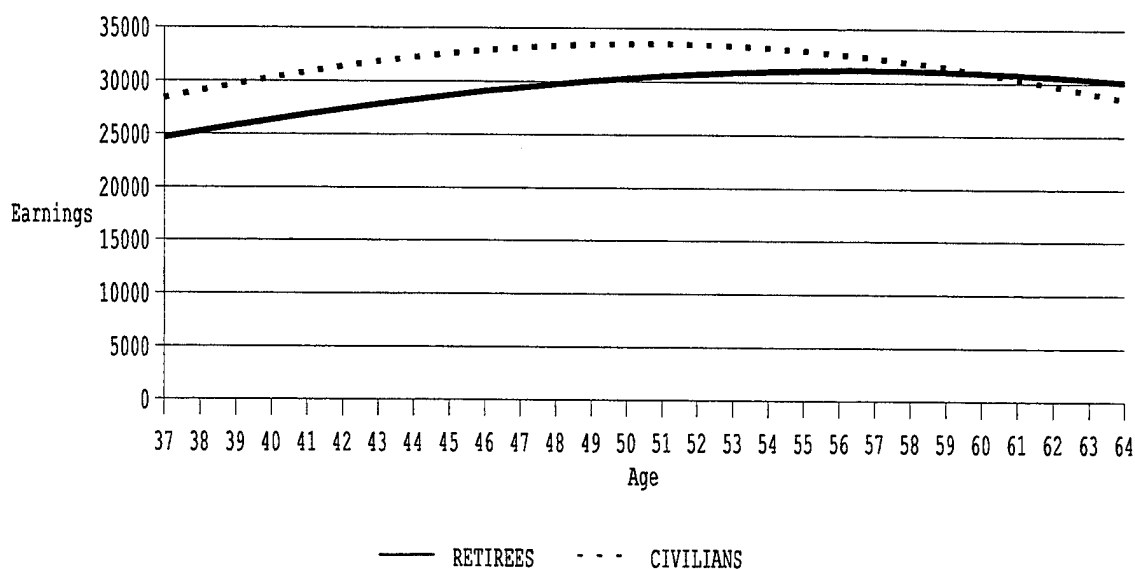
individual living in the south can experience a loss of .116 percent in his wage and salary income. Other than HSND, the variable DISABLED has the strongest negative effect on wage and salary income equating to a .164 loss, this finding is consistent with any individual employed in the labor force since health and physical abilities are an important factor in determining one's ability to work.

The class of work variable, GOVMENT, is negative and statistically significant, which is likely due to the fact that government salaries may not be as competitive when compared to private sector salaries. However, as Table 8 indicates, approximately 40 percent of retirees tend to enter the government sector (state, local or federal). Therefore, even though working for the government will result in lower wage and salary income, a large percentage of retirees still opt for this type of employment. This occupational choice by a retiree could be driven by the benefits (medical, retirement, credit for military service) associated with working for the government.

In Table 9 the parameter estimate for RETIRED is equal to  $-.038$  and is significant at the .01 level, where as in Version (III) of the full sample models (Table 6) retirees versus non-veteran civilians the parameter estimate was positive and equal to  $.155$ . Therefore, it appears that being retired only affects an individual in a negative way when he is a FTYR worker. However, the calculated combined net effect of being a retiree and receiving retirement income for the full sample is greater than the combined effect for the FTYR sample set. The calculated effect for the full sample was  $-.246$  and for the FTYR sample it is equal to  $-.149$  ( $\ln(11,090) \times (-.012) + -.038$ ) a difference of  $.097$ . Based on the calculations above, it appears that FTYR retirees are less disadvantaged than the full sample retirees. This finding is probably a result of the work tendencies of FTYR retirees who are

not affected by the various supply and demand factors of the labor market because of the imposed restriction of working FTYR.

An age-earnings profile was constructed to illustrate the FTYR earnings of retirees and non-veteran civilians. This age-earnings profile (Figure 4) utilized all the same parameter estimates that were used in creating the previous profile, but



**Figure 4. Retirees Versus Non-Veteran Civilians Age-Earnings Profile**

using the FTYR sample (Appendix B). The FTYR age-earnings profile in Figure 4 illustrates that the retiree's age-earnings profile does overtake the FTYR non-veteran civilian's age earnings profile at the age of 60. Initially, the retirees experience a wage and salary loss of \$3,720 at the age of 37. The slope of both profiles at 38 years of age is equal to .023. However, the non-veteran civilian profile reaches its peak at the age of 51 while the retiree's profile peaks at the age of 57. Both profiles intersect at the age of 60, at which point the retiree's earnings

surpass that of the non-veteran civilian. Up until the age of 60 retirees face a second career wage and salary loss of \$68,912 in comparison to non-veteran civilians. After the age of 60, retirees have a second career wage and salary gain of \$40,135 when compared to non-veteran civilians. The net loss of a FTYR retiree in his second career equates to \$64,777 or 7.88 percent. This earnings loss is significantly less than the loss of retirees versus non-veteran civilians in the full sample age-earnings profile (\$123,037). The discounted value of the earnings loss, utilizing a 5 percent discount rate, is equal to \$43,345 or 10.2 percent.

### C. RETIREES VERSUS VETERANS LT 20 (FTYR SAMPLE)

The final comparison of FTYR retirees versus FTYR veterans with less than twenty years of military service is illustrated in Table 10.

**Table 10. Earnings Regression for a Sample of Retirees  
Versus a Sample of Veterans LT 20 Years of Service**

VARIABLE	Coefficient	T-Value
INTERCEPT	8.24	79.15
MARRIED	.141	24.37
BLACK	-.111	-13.49
HSND	-.197	-25.61
ASSOC	.099	9.32
SOMECOL	.102	19.37
BACH	.364	58.18
MAST	.506	62.05
PHD	.764	62.08
SOUTH	-.115	-19.60
WEST	-.015	-2.24
MIDWEST	-.086	-13.30
DISABLED	-.156	-19.00

**Table 10 (Continued)**

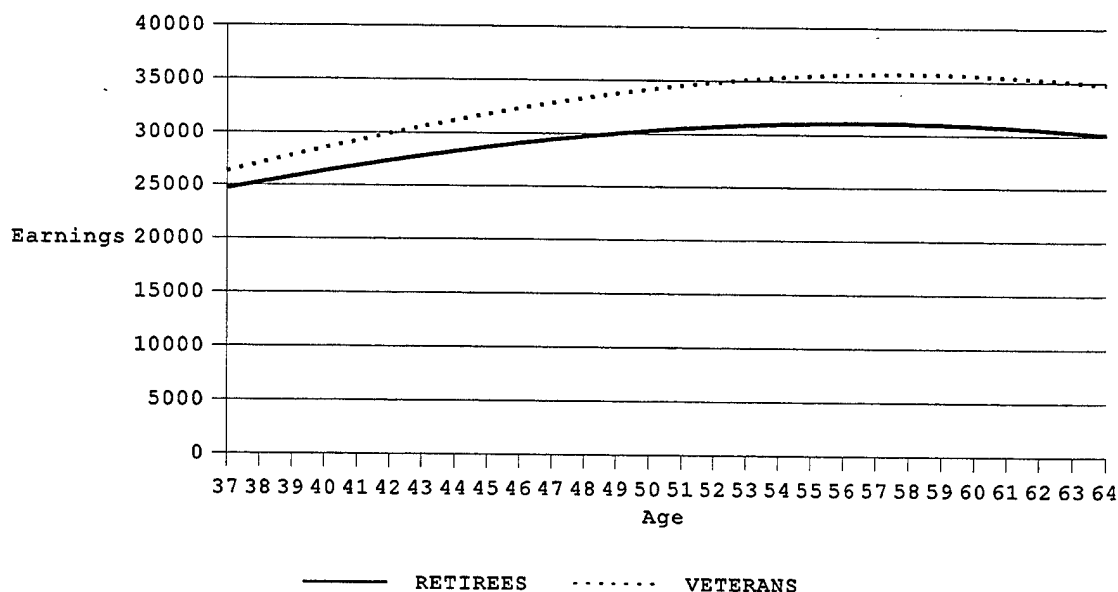
VARIABLE	Coefficient	T-Value
AGE	.077	18.44
AGESQ	-.0007	-17.51
GOVERNMENT	-.027	-5.26
LRETINC	-.016	-21.54
RETIRED	-.053	-7.54
R <sup>2</sup>	.1892	--
F-Statistic	892.156	--
N	65,029	--

The total sample size of this data set is 65,029 FTYR employees. Table 8 indicates that the expected signs are in line with the predictions made earlier for the different variables. The signs for Table 10 and Table 9 confirm the fact that the RETIRED variable has a negative impact on FTYR employees. When comparing the variables MARRIED, BLACK and HSND for the two models (Tables 9 and 10) there is no substantial difference in the parameter estimates between the two. The educational attainment for retirees in comparison to non-retired veterans parameter estimates are increasing in magnitude and vary little in value between Tables 9 and 10. However, when comparing retirees to non-retired veterans or non-veteran civilians we find that different educational levels are necessary for retirees to compete within each group. For example, when comparing the educational attainment variables in Tables 9 and 10 we find that the greatest effect for the education variables SOMECOL (.120) and BACH (.383) is within the retiree versus non-veteran civilian comparison group in table 9. Whereas, the greatest effect for the variables ASSOC (.099), MAST (.506) and PHD (.764) occur in the retirees versus the non-retired veterans comparison group in table 10. In summary,

advanced degrees benefit a retiree when compared to a non-retired veteran while a bachelors degree or some college education will suffice when compared to a non-veteran civilian.

The parameter estimate in Table 10 for the RETIRED variable is equal to -.053 and for LRETINC the estimate is equal to -.016 and both of these variables are statistically significant. The parameter estimates for the location variables are all negative and statistically significant. Again, a retiree living in the south will experience the greatest reduction in wage and salary income when compared to a veteran with less than twenty years of service. The effect of being disabled, as expected, is negative and constant between the two models. The combined effect of the RETIRED and LRETINC estimates for FTYR retirees vs non-retired veterans is equal to  $-.117 (\ln(11090) \times -.016 + -.053)$ . This is .2 less than the version (III) full sample net combined effect for retirees versus non-retired veterans in Table 5 (-.317) and is only .032 less than the combined effect for the FTYR retirees versus the non-veteran civilians in Table 9 (-.149). In essence, the data is indicating that being a retiree and receiving retirement income is less a disadvantage among the FTYR retirees versus non-retired veterans than it is among the retirees versus the non-veteran civilians.

Figure 5 is the age-earnings profile for retirees and non-veteran civilians. As with the previous age-earnings profiles, this profile was created by utilizing the same parameter estimates used to create the FTYR retirees versus non-veteran civilians age-earnings profile (Appendix B). The age-earnings profile graphs of the two comparison groups indicates that a FTYR retiree is significantly disadvantaged in wage and salary income when compared to a similar non-retired veteran. In fact, the profile of the retiree never converges with the profile of the veteran. The total



**Figure 5. Retirees Versus Non-Retired Veterans Age-Earnings Profile**

projected second career earnings of a retiree is equal to \$821,791 for retirees and \$923,580 for non-retired veterans which equates to a difference of \$101,789. The present value of the earnings loss, discounted at 5 percent, is equal to \$48,534 (11.37 percent). This value is \$5,189 more (\$48,534-\$43,345) than a retiree's wage and salary loss when compared to the FTYR non-veteran civilian. Therefore, it appears that a FTYR retiree will earn a lower wage and salary income when compared to FTYR non-retired veteran versus a FTYR non-veteran civilian.



## VI. CONCLUSIONS AND RECOMMENDATIONS

### A. CONCLUSIONS

This thesis investigated the post-military wage and salary differential between military retirees and two distinct comparison groups: (a) non-veteran civilians and (b) veterans with less than twenty years of service. A number of interesting conclusions can be drawn from the analysis conducted in this study.

The initial data analysis indicated that on average a smaller percentage of military retirees are labor force participants, and retirees who were in the labor force on average worked fewer weeks per year and fewer hours per week. It was also found that these same retirees not only worked less, but they took lower paying jobs, earning an average of \$4,347 less per year. This difference in earnings, however, was more than offset by a retirees' retirement income, resulting in a total personal income that is greater than the two comparison groups.

Table 11 presents the combined percentage effect of being a military retiree and receiving retirement income on annual wage and salary earnings. It also shows the present value of the lifetime civilian earnings differences between retirees and each comparison group. These differences are displayed for the full sample of workers (panel I) and for the sample of FTYR workers (panel II).

To summarize, the combined effects for both samples and both comparisons of lifetime earnings are negative when the full sample of workers is used, with the earnings loss ranges between 24 and 31 percent for retirees. When only FTYR workers are analyzed, the earnings loss for retirees is between 11 and 14 percent. It should be borne in mind that the percentage difference is based on pooled regressions and dummy variables for retiree status while the age-earnings profiles were calculated from regressions on each separate group. Therefore, although both

**Table 11. Combined Percentage Effects and Present Values of Lifetime Earnings**

	RETIREES VERSUS CIVILIANS	RETIREES VERSUS VETERANS
<b>I. FULL SAMPLE</b>		
COMBINED PERCENTAGE EFFECT (version III)	-24.6%	-31.7%
PV OF LIFETIME EARNINGS DIFFERENCES	-\$72,108	-\$11,063
<b>II. FTYR SAMPLE</b>		
COMBINED PERCENTAGE EFFECT (version III)	-14.9%	-11.7%
PV OF LIFETIME EARNINGS DIFFERENCES	-\$43,345	-\$48,534

Note: Combined effects based on pooled regressions and lifetime earnings based on regressions for each individual comparison group.

the present values are negative, the earnings loss for the retirees is substantially higher when compared with non-retired veterans. In any case, the end result is that retirees suffer a loss of wage and salary income with a present value in excess of \$43,000.

Consistent with previous research, retirees are consistently earning a lower wage and salary income in their second careers than otherwise comparable non-veteran civilians or non-retired veterans. This study indicates that the combined effect of being a retiree and receiving a substantial amount of retirement income plays a significant role in determining what type of wage and salary income a retiree will strive for in his post-retirement civilian career. This loss could also be affected by a retiree's lack of training, civilian experience or seniority in his second career job. Consequently, retirees may opt to take positions that do not require a significant amount of training and/or take positions that pay less than their skills could normally command. Based on the findings of this study, a retiree suffers a

substantial earnings loss in his second career. Since a retiree is significantly disadvantaged in these attributes upon retirement from the military, a retirement system that provides benefits to its retirees is necessary to offset the loss incurred in a second career by a military retiree. Regardless of post-retirement work tendencies, FTYR retirees still suffer a substantial loss in wage and salary income, as illustrated by the combined effect and present value of earnings.

## **B. RECOMMENDATIONS**

The construction and administration of a new survey for military retirees is highly recommended in order to better analyze the factors that affect a military retiree's wage and salary income. The structure of the PUMS and the type of questions it administers are too general in nature to allow for an in-depth analysis. For example, questions concerning the exact number of years since retirement, branch of service, rank and position in the service would be beneficial in deriving assimilation rates of retirees into the civilian sector.

Further information on the effects of being an officer or enlisted person as well as military occupational background and training and how it affects a retiree's civilian career would also be useful. Consequently, a survey that is more detailed and that addresses these specific questions would significantly increase an analyst's ability to study all the factors that affect a retiree's earnings potential. Surveys could be given periodically to establish a cohort data set and document the labor force participation tendencies of retirees as they retire from the military, enter a second career in the civilian labor market and then finally retire from the labor force altogether. Finally, further study needs to be conducted to determine exact retirement income effects and compare income levels among the three groups to determine if the current level of retirement benefits is appropriate.



**APPENDIX A. REGRESSION ESTIMATES FOR AGE-  
EARNINGS PROFILES (FULL SAMPLE)**

	<b>CIVILIAN</b>		<b>VETERAN</b>		<b>RETIRED</b>	
<b>VARIABLE</b>	<b>Coefficient</b>	<b>T-value</b>	<b>Coefficient</b>	<b>T-value</b>	<b>Coefficient</b>	<b>T-value</b>
<b>INTERCEPT</b>	5.80	49.85	5.89	45.59	7.24	20.71
<b>MARRIED</b>	.235	36.68	.190	26.72	-.129	-8.14
<b>BLACK</b>	-.166	-18.01	-.133	-11.836	-.077	-3.79
<b>HSND</b>	-.233	-30.62	-.162	-18.39	-.277	-9.25
<b>ASSOC</b>	.094	5.72	.117	7.84	-.066	-2.41
<b>SOMECOL</b>	.131	16.12	.107	14.82	-.013	-.978
<b>BACH</b>	.394	48.55	.374	44.60	.202	11.22
<b>MAST</b>	.488	48.06	.482	39.76	.434	23.14
<b>PHD</b>	.713	59.04	.761	48.15	.610	15.49
<b>SOUTH</b>	-.148	-20.79	-.146	-19.56	-.002	-.011
<b>WEST</b>	-.034	-4.19	-.032	-3.86	.022	1.04
<b>MIDWEST</b>	-.076	-10.06	-.107	-13.52	-.139	-5.60
<b>DISABLED</b>	-.197	-18.41	-.183	-17.58	-.122	-7.28
<b>AGE</b>	.096	19.75	.090	17.51	.053	3.93
<b>AGESQ</b>	-.0009	-19.21	-.0008	-16.72	-.0004	-3.68
<b>GOVMENT</b>	-.079	-9.72	-.042	-5.53	.029	2.48
<b>LINC7</b>	-.014	-6.83	-.027	-23.69	-.031	-22.63
<b>PARTTM</b>	-.263	-31.05	-.217	-25.32	-.342	-20.09
<b>WEEK89</b>	.039	129.76	.039	128.2	.036	65.57
<b>R<sup>2</sup></b>	.4581	--	.4356	--	.2615	--



**APPENDIX B. REGRESSION ESTIMATES FOR AGE-EARNINGS  
PROFILES (FTYR SAMPLE)**

	CIVILIAN		VETERAN		RETIRED	
VARIABLE	Coefficient	T-value	Coefficient	T-value	Coefficient	T-value
INTERCEPT	7.96	70.12	8.14	68.00	8.43	35.46
MARRIED	.210	32.59	.155	23.1	.093	8.06
BLACK	-.170	-18.37	-.136	-12.72	-.069	-4.92
HSND	-.245	-32.41	-.195	-22.97	-.131	-6.52
ASSOC	.095	6.22	.126	9.43	.044	2.51
SOMECOL	.152	19.84	.120	18.24	.067	7.63
BACH	.414	54.73	.395	52.66	.286	25.18
MAST	.481	50.15	.491	43.91	.518	43.88
PHD	.723	64.52	.777	54.36	.737	30.19
SOUTH	-.129	-19.10	-.130	-19.10	-.067	-5.38
WEST	-.029	-3.73	-.022	-2.88	.019	1.45
MIDWEST	-.067	-9.33	-.084	-11.70	-.102	-6.54
DISABLED	-.199	-16.48	-.180	-16.19	-.119	-10.04
AGE	.091	18.95	.081	16.80	.068	7.43
AGESQ	-.0009	-18.35	-.0007	-15.98	-.0006	-7.02
GOVMENT	-.099	-12.56	-.061	-8.78	.023	2.91
LINC7	-.016	-6.49	-.024	-18.07	-.011	-11.94
R <sup>2</sup>	.2527	--	.1973	--	.1563	--



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